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ABSTRACT

The development of children's understanding of the learning process and factors that affect learning was explored with a sample of 18 children from 6 to 13 years of age. Subjects were interviewed, and three levels of their reasoning were identified. The 6- to 7-year-old subjects viewed learning as "doing" and reasoned that external-situational factors affect learning. The 9- to 10-year-old participants conceived of learning as "knowing"; they reasoned that interactions between the learner and the activity and between the learner and others also affect learning. Cognitive and psychological characteristics of the learner were described by this middle group, but their direct influence on the process of learning was not clearly understood by the child at this age. The 12- to 13-year-old children conceptualized learning as an inferred, interactive, cognitive process and emphasized psychological factors (such as cognitive abilities, personality, and motivational features) as affecting learning. In addition, the interaction between the learner's cognitive/psychological self, the activity to be learned, and the teacher was central to the view of learning held by this older group. Results were interpreted in terms of consistent and progressive change across age groups and the similarity of findings to previous research on the developmental nature of psychological concepts. Possible implications for educating and counseling children with special education needs were suggested. (Author/RH)

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A Developmental Analysis of Children's Understanding of the Learning Process

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Abstract

Guided by a cognitive developmental methodology, the development of children's understanding of the learning process and the factors that affect learning were explored. Eighteen children, from ages 6 to 13, were interviewed and, through a qualitative analysis of the data, three levels of reasoning were identified. The 6 to 7-year olds viewed learning as "doing" and reasoned that external-situational factors, such as adhering to classroom rules and procedures, affect learning. The 9 to 10-year olds conceived of learning as "knowing" and reasoned that interactions between the learner and the activity and the learner and others also affect learning. Cognitive and psychological characteristics of the learner were described at this level but their direct influence on the process of learning was not clearly understood by the child at this age. The 12 to 13-year olds conceptualized learning as an inferred, interactive, cognitive "process" and emphasized psychological factors, such as cognitive abilities and personality and motivational features as affecting learning. In addition, the interaction between the learner's cognitive/psychological self, the activity to be learned, and the teacher was central to their view of learning. The results were discussed in terms of the consistent and progressive change across the age groups studied and the similarity of the findings to previous research on the developmental nature of psychological concepts. In addition, possible implications for educating and counseling children with special education needs were suggested. Due to the exploratory nature of this research

project and the small sample size, it must be cautioned that the results are a first step toward documenting the normal course of development of children's conceptualization of the learning process. Further research is necessary to establish more firmly the developmental and organizational nature of the levels identified.

As a result of Piaget's extensive work in the area of cognitive development, it is widely accepted that children's cognitions about physical and logicomathematical phenomena develop in a qualitative, stage-like manner. In addition, Piaget and Kohlberg have applied the cognitive developmental approach to the development of moral reasoning. More recently, there has been a growing body of research making use of cognitive developmental theory to study and describe the development of children's understanding of social and psychological concepts, such as social convention, groups, social systems, persons, personality, self, self-concept, self-awareness, identity, and feelings. The results of these studies give strong evidence that there are developmental trends in the way children think about social and psychological processes.

The present study follows in this theoretical tradition and looks specifically at the development of the concept of learning and children's understanding of psychological factors that affect learning. It was hypothesized that children develop intuitive theories or frameworks regarding the learning process that are developmental in nature. That is, with increasing age and experience, there are consistent, progressive changes in children's organization of their conceptualization of the learning process and of their understanding of psychological factors that affect learning. With the acknowledgement that this was an exploratory study, the actual goal was modest: to develop tentative, descriptive levels of how children at different ages think and reason about learning. In addition, it was of interest to determine if the resulting descriptive levels would bear some resemblance to the findings reported by other researchers on the development of psychological concepts. A brief review of some of these findings follows.

There are a number of studies, from the cognitive-developmental approach, which have examined the development of psychological concepts and children's use of psychological concepts in explaining and predicting behavior. Flavell (1970) described the global development of the child's psychological concepts as moving gradually from an outside description of the person to the psychological inside of the person. Children initially reason about aspects of the person that are most accessible to direct perception and only later consider covert cognitive and motivational processes in others and in themselves. Support for Flavell's description comes from the following research findings.

The development of the individual's reasoning about the identity of self was described by Wolfson (1972) as progressing from a focus on external properties, such as size to reasoning focused upon internal properties, such as psychological traits and the process of memory. Nucci (1977) reported a similar developmental progression concerning the concepts of self, personality, and the individual, as did Broughton (1978) for the concept of self. (In addition, see Damon and Hart, 1982, for a review of self-understanding.) Pratt (1975) described the development of children's understanding of person perception as shifting from an initial focus on external, observable qualities of others and global descriptors, to a level where the other person is described in terms of characteristic behaviors in a given situation, to a conceptualization of others in terms of personality traits or internal dispositions.

Tharinger (1981) studied the development of children's understanding of why they experience feelings and concluded that children's reasoning in this domain undergoes significant developmental change. Children's reasoning shifts from (a) a focus on

describing and globally evaluating persons, relationships, and external events at early childhood, to (b) a level at middle childhood where the child's reasoning is characterized by differentiating, generalizing, and qualifying aspects of the person, relationships, and external events, to (c) a level where the child's reasoning is characterized by enduring characteristics of the person, a reflection on person and relationships, and explicit comparisons between external events at late childhood. A recent study by Nannis (1983) gives supportive evidence that children develop an increasingly sophisticated understanding of feelings, shifting from basing their judgments about feelings on the physical manifestation of the feeling at early childhood, to activities and interactions with others and beginning psychological criteria at middle childhood.

Pratt (1975) analyzed children's explanations for the characteristic behaviors and activity preferences of described acquaintances. He found that children between the ages of 7½ and 9 increase in their use of specific internal features of the actor, such as motives, interests, and thoughts in their explanations. He also found a developmental progression in the use of both features of the person and features of the environment, a finding most common with his oldest subjects, 15-year-olds. In another study investigating the use of external and internal factors, in this case to predict the behavior of others, Josephson (1976) found that the use of personalistic factors in prediction increased from ages 5 to 11 and then decreased, and that the use of situational factors decreased from ages 5 to 11, and then increased. His results suggest a progression from a focus on external factors in predicting behavior, to a focus on

internal factors, to a focus on a combination of the effects of both in predicting behavior, in agreement with the Pratt findings.

There have been no research studies, to the author's knowledge, investigating the development of children's concept of learning. The development of the nature of thought was investigated in an early study by Piaget (1929/1960) and a few studies have examined children's reflections on their thought (Miller, Kessel, & Flavell, 1970; Shultz & Cloghest, 1981). Findings on children's understanding of the learning process and what factors they consider important to affecting learning will increase the body of knowledge available on the development of children's awareness of their own psychological process. In addition, the findings may be of interest to educators to help them understand the world of learning from the child's perspective. Moreover, developmental norms describing the child's understanding of learning may be useful to special educators and psychologists planning interventions to help children understand the factors that may be hindering or frustrating their learning. Thus, the results from this study may have implications for educating and counseling children with learning handicaps.

Method

Subjects

To investigate the questions raised in this study, 18 children between the ages of 6 and 13 were interviewed, with 6 children, 3 boys and 3 girls, in each of the following age groups: 6 to 7-year olds (first graders, mean age 6-8); 8 to 10-year olds (fourth graders, mean age 9-11); 12 to 13-year-olds (seventh graders, mean age 12-11). The

children attended a small Catholic School in Oakland, California, where the population is ethnically and socioeconomically diverse. Permission slips were sent to parents of all the children in three classrooms, and the participants were chosen from the sample who returned parent permission slips. Factors taken into account in selecting subjects included only the age of the child and the child's fluency in the English language.

Interview

The interview was constructed by mapping out major areas in the field of learning often studied by psychologists and by creating questions in each area that children as young as age 6 would understand and that children as old as 13 would not get bored with. For the present report, the children's responses from two areas of the total interview, the concept of learning and factors that affect the learning proces, were utilized. The following are the basic questions asked in each area.

Concept of Learning

WHAT IS LEARNING? WHAT HAPPENS WHEN WE LEARN? / HOW DOES LEARNING HAPPEN?

Factors Affecting Learning

WHAT ARE THE FACTORS THAT AFFECT (ARE IMPORTANT TO) HOW WE LEARN? WHAT ARE THE THINGS YOU HAVE TO DO TO LEARN SOMETHING?

WHY IS X IMPORTANT? IF SOMEONE DIDN'T X, COULD HE OR SHE LEARN?

WHAT CAN KEEP A PERSON FROM BEING ABLE TO LEARN?

DESCRIBE A GOOD LEARNER. WHAT MAKES SOMEONE A GOOD LEARNER?/WHAT IS A GOOD LEARNER LIKE?

DESCRIBE SOMEONE WHO HAS A HARD TIME LEARNING. WHAT MAKES SOMEONE A POOR LEARNER?/WHAT IS A POOR LEARNER LIKE?

WHAT CAN SOMEONE DO TO BE A BETTER LEARNER?

Procedure

The interview was administered by the author to each child in basically the same way, although probes and additional questions followed from the individual child's responses. Each interview averaged about one hour, and was conducted in one, two, or three sessions, depending on the age, attention span, and schedule of the child. The interviews were tape recorded and transcribed for purposes of analysis.

Qualitative Analysis

The children's interviews were examined first for the structure of reasoning regarding their understanding of the concept of learning. Included was an attempt to characterize the essence of learning at each level and to examine the reasoning in relation to the following three dimensions: passive vs. active nature of the learner, external vs. internal control by the learner, and observed vs. inferred perception of learning by the learner. The interview data were them studied for the factors children described as being important to the learning process. This analysis produced four categories: external-situational factors, interactional (learner-others) factors, cognitive factors, and noncognitive psychological factors.

Results

From the qualitative analysis, three levels of reasoning, which represent changes in the conceptualization of the process of learning and

of the factors that cause learning, were identified. The changes between levels can be characterized as a shift from conceptualizing the process of learning as one that involves doing activities, in a static reaction to external-situational factors (Level One); to a transistional phase where learning is conceptualized as knowing and results from an interaction between the learner and the learning activities and the learner and others, and where a beginning awareness of the importance of the psychological process of cognition and psychological/personality factors is apparent (Level Two); to a conceptualization of the learning process as an interactive process of acquiring knowledge, where the learner is an active participant in the process and the process is influenced by the cognitive ability and psychological characteristics of the learner.

The level descriptions which follow contain examples from the children's interview protocols to illustrate the analysis. Table 1 is a summary of the levels. Table 2 is a chart illustrating the developmental progression across Levels One, Two, and Three on the previously described dimensions, and Table 3 illustrates the same regarding the factors affecting learning.

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Tables 1, 2, and 3 about here

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Level One: Engaging in School-Related Activities (Ages 6 to 7)

At Level One, learning can be characterized as doing activities and results from doing the activities themselves and adhering to external-situational factors, such as classroom rules and procedures.

Learning is equated with what is done in the classroom; observable behavior. As a result of learning, one can do the activities, can do more and harder activities, and can go to the next grade. The following responses from children at this level illustrate this description.

> WHAT IS LEARNING? WHAT DO YOU THINK LEARNING IS? Working. TELL ME MORE. Doing your math, doing homework. WHAT HAPPENS WHEN WE LEARN THINGS? We get something new. HOW? When we finish something. HOW DOES LEARNING WORK? HOW DOES LEARNING HAPPEN. I don't know. (Kardel, 7-2)

> WHAT DO YOU THINK LEARNING IS? WHAT IS LEARNING? It means that you have to listen, because you never learn if you never work. WHAT HAPPENS WHEN WE LEARN? We get smart when we listen, because when you listen you can know lots of things that is right. WHAT HAPPENS WHEN WE LEARN THINGS? We start to get old and we get to learn lots of things and you know mostly everything. HOW DOES LEARNING HAPPEN? HOW DO WE LEARN THINGS? By listening and by hearing and by working. WHAT DO YOU MEAN BY WORKING? What you're suppose to do everything that the teacher asks you to do, because, or your mother or your father, because that's what we're suppose to do. (Catherine, 6-9)

Catherine emphasizes working as essential to learning, but also introduces the "suppose to" aspect, suggesting the reactive nature of her conceptualization of learning. The learner is not seen as being in control, or even an active participant, in the learning process.

> LARRY, WHAT DO YOU THINK LEARNING IS? Um, people help the children and, say, read, and their mothers and fathers help them read books. WHAT HAPPENS WHEN WE LEARN THINGS? You can read and you can write. HOW DOES LEARNING HAPPEN? By going to school. WHAT HAPPENS IN SCHOOL THAT HELPS US LEARN THINGS? They give you books to read that's easy. IF THEY'RE EASY, WILL THAT HELP YOU LEARN? Yes. WHY DOES THAT MAKE A DIFFERENCE? You can read the books and when you pass a grade you can read harder books. (Larry, 6-8).

Larry provides information that learning is equated with what is done and his responses illustrate the notion that children at this level have the sense that learning is done to them; the external environment sets up the conditions for learning.

> DESCRIBE WHAT LEARNING IS. WHAT IS LEARNING? We have spelling test, we play games outside, we have lunch. THAT SOUNDS LIKE EVERYTHING HAPPENS AT SCHOOL. WHAT IS LEARNING? Writing our words. Doing our basic facts. HOW DO WE LEARN THINGS? By our teacher telling us. THEN WHAT DO YOU DO? We do it and whatever she tells us to do for homework, we do it. WHAT HAPPENS WHEN WE LEARN THINGS? We go to other grades. (Stephanie, 6-3)

Stephanie also equates learning with doing and emphasizes the importance of doing what the teacher says, a prevalent notion at this level.

At Level One, learning is conceptualized as doing the activities. Learning is conceived as observable behavior and is directly and outwardly experienced; one can see others doing their work. Learning also appears static at this level; the learner is not characterized as interacting with the learning activities or with others. No sense of the influence of self as a learner is implied at this level. Rather, the learner is conceptualized as reacting to the external-situational requirements and rules of the classroom, as illustrated by Catherine's, Larry's, and Stephanie's responses. The learner is seen as learning because that is what is expected of him or her.

In regard to factors affecting learning or being important to learning, children at this level emphasize doing the activity, such as working, studying, and reading and following the convention and moral rules of the classroom

> LET'S SAY YOU WANT TO LEARN SOMETHING, SOMETHING YOU DON'T KNOW YET. WHAT ARE ALL THE THINGS YOU HAVE TO REMEMBER TO DO TO LEARN SOMETHING? WHAT ARE ALL THE THINGS THAT ARE IMPORTANT? Do your work. Do your homework. And do the right thing, and not fight and hurt people. And play right. And you should do what (teacher) said to do. And you should get your box when (teacher) tells you to. YOU SAID TO WORK HARD. WHAT DO YOU HAVE TO DO TO WORK HARD? Work hard? That means I have to really work hard. If I can't work hard, I can't do

> nothing. WHAT IF YOU DON'T DO WHAT THE TEACHER SAYS. CAN YOU STILL LEARN THEN? No. Because you done the work she says. And like if you don't do your work, you can't do nothing, like I didn't do my work before, and I had lots of work to do and I didn't do it, and (teacher) got mad at me. She makes me do my work inside. (Mike, 6-4)

Mike's response illustrates the importance of doing the work, following the rules, and doing what the teacher says. Stephanie's and Judith's responses are along similar lines.

> If I want to learn something, I would have to think and ---(pause). WHAT ELSE WOULD BE IMPORTANT? Not messing up the tables. My table does, but I don't. WHAT ELSE . . .? If you're doing something, you should put whatever you're doing away. WHAT ELSE IS IMPORTANT? Not scream in the classroom. ANYTHING ELSE? Not to talk back to your mother and father. (Stephanie, 6-4)

> WHAT ARE ALL THE IMPORTANT THINGS THAT YOU HAVE TO REMEMBER TO DO TO LEARN SOMETHING? Listen to the teacher and you have to always remember to write your heading and you also have to do lots of things. LIKE WHAT KIND OF THINGS? You have to be very good so your teacher won't yell at you like the second grade teacher does; yell at all the second graders when they are being bad. (Judith, 7-10)

The children at this level report rules that appear to be designed to foster doing the activities directly, such as listening, paying attention, and getting out work, and rules that appear to be designed to govern behavior, such as not playing, messing up the tables, and not fooling around. Again, the perceived child at this level does not appear to have control, but rather, the rules of the external environment and the teacher are in control.

The children were also asked WHAT SOMEONE COULD DO TO BE A BETTER LEARNER and were asked to describe A GOOD LEARNER and a POOR LEARNER. The overall results on this questioning reveal that the children apply the same understanding of the learning process described above, that is,

doing the activities and following the situational rules which apply to these situations.

In response to WHAT WOULD SOMEONE NEED TO DO TO BE A BETTER LEARNER, the following are examples:

> Listen to the teacher, follow directions, like me and Denise and Larry and Joyce and Adrian. (Judith, 7-0)
>
> Listen and stop playing and to pay attention. (Catherine, 6-9)

A GOOD LEARNER was described as:

> They be nice and they do their work. And sometimes when they do their work, (teacher) give 'em, like if there's a spelling test, they get to hand out the papers to the people. And that makes them happy to do their work. (Mike, 6-4)
>
> Happy. A kind boy. WHY? Cause he learned. TELL ME MORE. He learns. (Kardel, 7-2)
>
> They do their work and they know lots of things and they can help each other, sometimes, when they don't have nothing to do. And when they finish their work, they can go somewheres, or play or do lots of things, but if you don't finish your work, you won't be able to go those places. (Catherine, 6-9)
>
> They study and they do their work. They read hard. They read hard. They read all the pages and all the stories and do the main idea about it, and they can go on to the next one. OTHER THINGS? They be quiet when the teachers ask them to be quiet and they study whenever their teacher tells them, and they work hard so they can learn. (Larry, 6-8)

Thus, at Level One, a good learner is perceived as one who does the work, follows the rules, and is aware of the reward system. In addition, a good learner is described globally and positively, e.g., as happy, kind.

A POOR LEARNER was described by the children at this level as:

> Playing and not doing their work. PLAYING? They talk and run around the classroom and they don't obey the teacher. WHAT ELSE IS A POOR LEARNER DOING? Running around, talking, shouting, and messing things up. (Larry, 6-8)

> They are dumb, they just hang around everyday, they never play. They never get to play cause the teacher tells them to sit on the bench. WHAT MAKES SOMEONE DUMB? They don't do things right and they don't know how to do things right. (Judith, 7-0)

> Sad. Unhappy. He won't be glad WHAT'S KEEPING HIM FROM BEING A GOOD LEARNER? He didn't listen. WHAT MIGHT HE BE DOING? Play. (Kardel, 7-2)

> They act bad. WHAT DO YOU MEAN? They don't do what (teacher) says, or they don't do their work. (Michael, 6-4)

Thus, at Level One, children perceive a poor learner as someone who does not do his or her work and does not follow the rules. In addition, a poor learner is described globally and negatively.

Summary of Level One. At Level One, learning is characterized as doing activities and adhering to external-situational requirements, such as classroom rules and procedures. Learning is described as an observable behavior, directly experienced. The learner is perceived as static, non-interactive. The learner reacts to external-situational requirements and persons, which are seen as being in control of learning. Children at this level characterize two factors as influencing learning: doing the activities/learning tasks in a static, non-interactive fashion and following the rules and procedures of classroom. At Level One, there is no indication of internal, psychological awareness, either in the sense of learning being a psychological cognitive process or in the sense that learning may be influenced by internal psychological characteristics of the individual, cognitive or non-cognitive.

Level Two: Possessing Knowledge (Ages 9 to 10)

At Level Two, learning can be characterized as the acquisition of knowledge and results from an interaction between the learner and the activity to be learned, and from an interaction between the learner and

others. Psychological and cognitive characteristics of the learner are described, but their influence on learning is not yet clearly understood. Learning is described as knowing and coming to know. As a result of learning, one can know more and acquire more knowledge. The following responses of children at this level illustrate this description.

> WHAT IS LEARNING? HOW WOULD YOU DESCRIBE OR DEFINE LEARNING? Well, learning is kind of, well, it's kind of hard to explain it. Like using your knowledge and getting more of it. And kind of it's real important in life, you have to, you know, learn. But, it's kind of hard to explain it cause you always have to use the word learning. WHAT HAPPENS WHEN WE LEARN? Well, you kind of get smarter. WHAT DOES IT MEAN TO GET SMARTER? To know more in your head and stuff. (Theresa, 10-2)

> WHAT IS LEARNING? I don't really know. It's, you learn. There's really not something to say about learning, you just go farther, like first you know your +'s, then your x's, then division, then harder, then on and on. On and on, harder and harder, step-by-step. WHAT HAPPENS WHEN WE LEARN THINGS? Well, you know something everyday, like maybe you know a new word, or something like that. (Todd, 10-3)

Learning at this level is knowing. It is inferred; it is not directly observable behavior, as one cannot see somebody knowing. Therefore, in a shift from Level One, children at this level are inferring that learning is something internal, though an understanding of learning as a process, which appears at Level Three, has not yet developed. Another shift occurs at this level. Children perceive learning as occuring through an interaction between the learner and the activity to be learned, and the learner and others. The learner-other interaction appears to be the pre-notion to an understanding of the process of being taught, which surfaces at Level Three. These interactions are illustrated by the following responses, where children responded to questions regarding the factors affecting learning or being important to learning.

> WHAT KIND OF THINGS DO YOU HAVE TO KNOW BEFORE YOU CAN LEARN SOMETHING NEW. Well, you have to know, I don't understand. (R) In lots of ways, you have to know what you've already done. Like if you're learning your times tables, 5 x 1 is 5. Like if you couldn't catch on to what 5 x 2 was, you could just go, well, 5 + 5. You'd have to know what 5 x 1 was to do 5 x 2. WHAT OTHER THINGS...? And study. You have to think, study, know what you're trying to do. Well, you can't just start something without knowing a little about what it is. But most of it, we've kind of said. (Theresa, 10)

> WHAT ARE ALL THE THINGS THAT ARE IMPORTANT TO LEARN SOMETHING? Have to remember how to remember, get your brain to open to bring it in. You got to listen, work hard to learn it, practice. WHAT DOES HARD WORK MEAN? To do it, to work hard on it, to be sure you know it. (Michael, 9-7)

> WHAT ARE ALL THE THINGS THAT ARE IMPORTANT IF WE WANT TO LEARN THINGS? You can't be dumb at it if you wanted to know it, you could be pretty good at it; trying to get better. If you're dumb and you want to get better, you could be better at it. But like when people are dumb, they don't want to be good at it, they just look like they're studying. (Gary, 9-8)

What is also evident in the above responses is the beginning tendency to refer to cognitive and psychological (personality/motivation) aspects of the learner, such as knowing, remembering to remember, caring, wanting to, etc. However, it is not evident that children at this level have an understanding of the effects of cognitive ability and/or personality/ motivational factors on learning, as children at Level Three do. But, children at this level understand that people have psychological attributes, motivations, etc., a realization that the children at Level One did not have. This type of transitional understanding of psychological factors is also illustrative of children's concept of learning at this level; it is more than doing, but less than a process of acquiring knowledge. Another shift is also apparent at this level; the learner is viewed as being active, with the activities and with others.

Children at Level Two describe four major factors as influencing

learning. They include: 1) external, situational factors, such as following specific rules of the classroom; 2) interactions between the learner and the activities to be learned, such as studying, practicing, and working hard, and interactions between the learner and others, such as cooperating, helping, asking questions; 3) cognitive psychological factors, such as coming to know, knowing what you are doing, opening up your mind; and 4) psychological personality and motivational characteristics such as attitude, effort, and liking the activity. Although both psychological categories are mentioned at this level, the possible effects that psychological factors have on the learning process are not explained. The use of these factors is further illustrated in the following responses to questions regarding better learners, good learners and poor learners.

Typical responses to the question, WHAT CAN ONE DO TO BE A BETTER LEARNER? were given my Theresa and Michael.

> Not to play around, kind of work hard, and if they need help, to ask the teacher or somebody, and maybe like split their time instead of always, like, playing outside. Split their time shorter outside and work harder inside for homework. (Theresa, 10-2)

> They could go for help when they need it. They could listen more better. That's all. (Michael, 9-7)

Responses to the above question commonly emphasized getting help from others to be a better learner. A GOOD LISTENER was described as:

> This girl in my class. She's smart and she's kind to everybody. She doesn't act big. OTHER THINGS? They can ask their parents for help. (Eleanor, 9-7)

> Works instead of talks, probably. Probably does their work kind of fast, and the teacher in a way probably likes that person to help her sometimes, like the teacher might say, "Would you please help me, and since you've done your work, help them." And then that would be helping the teacher and in a way it could show, you know, she already did it and she studied, and so she's using her knowledge to help someone else. (Theresa, 10-2)

A POOR LEARNER was described as:

> They probably try but they probably goof off or something or they don't try to do the work at home cause they go outside and play and stuff and I guess they don't think school's more important than playing. (Todd, 10-3)

> He don't like to learn. He likes to play outside, play sports and stuff. He gets in trouble. WHY...? He don't do his work, he just talks in the class. He don't like school. He gets tired of being in the same class all the time and doing the same stuff. He gets tired of it, so he fools around. He wants to go play. (Michael, 9-7)

In these descriptions of good and poor learners, references were made to external-situational factors, such as playing around; to interactions with the activities, such as studying hard and working fast; to interactions with others, such as helping and getting help; to cognitive-psychological factors, such as using knowledge and knowing it; and to non-cognitive psychological factors, such as not liking school and people's way of acting.

Summary of Level Two. At Level Two, learning is characterized as the acquisition of knowledge; knowing, and results from an interaction between the learner and the activity to be learned and from an interaction between the learner and others. Cognitive and psychological characteristics of the learner are described, but their direct influence on the process of learning is not clearly understood. Learning as knowing is an inferred, internal quality, not yet conceived as a process. The learner is viewed as an active participant in coming to know, and has some control in his or her learning, though the learner relies on others to a great extent. The children at this level refer to four factors as influencing learning: interactions between the learner and the activities and the learner and others; the learner's cognition or ability to know; psychological

factors such as personality and motivational characteristics; and external-situational factors. Children at Level Two do not yet conceive of learning as a process or have an understanding of what happens when one is taught. As mentioned previously, an understanding of the effects of psychological characteristics of the learner on the learning process is not yet well developed.

Level Three: An Interactive Process of Acquiring Knowledge (Ages 12 to 13)

At this level, learning is characterized as a developing, cognitive process. It is seen as an interactive process occurring between the learner's cognitive/psychological self, the teacher, and the activity to be learned. It is this interaction which is equated with "being taught." As a result of the learning process, one acquires knowledge and understanding and develops skills and tools to use in other situations and in the future. The following responses from protocols illustrate this description.

> WHAT IS LEARNING? HOW WOULD YOU DESCRIBE WHAT LEARNING IS? Learning is, I think, a process where people teach you different subjects or about different things. CAN YOU DESCRIBE THE PROCESS OF LEARNING A LITTLE MORE? Like if you, say social studies, you wanted to teach about a war, you might teach about the different causes of the war, first, maybe what happened in the war. WHAT HAPPENS WHEN WE LEARN? Well, depends on your attitude maybe. Like if you enjoy something, like a certain subject, you might be more interested in it, pay more attention to it. Or, if you're boared, you might just kind of "uh." (Laura, 12-11)

> WHAT IS LEARNING? HOW WOULD YOU DESCRIBE WHAT LEARNING IS? Um, learning is, um, developing your skills. Someone teaches you things, and you could use them, in future use. And, um, learning can help you with problems and learning can help you with other things. WHAT DO YOU THINK HAPPENS WHEN WE LEARN THINGS? You can do things with them. Like if you learn how to play a game, you could play with others, and if you learn math problems, you could pass a math test. HOW IS IT WE LEARN THINGS? We can learn from other people, and we can learn from teachers. Now teachers teach you and try to educate you, and everything. (Greg, 12-10)

> WHAT DO YOU THINK LEARNING IS? When you are taught how to do something and you try and you keep trying until you understand what you are doing. WHAT HAPPENS WHEN YOU LEARN SOMETHING? You get smarter and probably understand more of the world around you. (Theresa, 13-0)

At this level, learning is viewed as an inferred cognitive process, one that cannot be observed. In addition, and a further development from the prior levels, the process of learning is seen as clearly being affected by psychological characteristics in the learner, such as attitude, interest, motivation, effort, affect, and the learner's cognitive abilities. This is illustrated by responses to questions regarding the factors affecting learning.

> WHAT ARE ALL THE FACTORS THAT AFFECT HOW WE LEARN? Do you mean like attitude? YES. YOU MENTIONED ATTITUDE BEFORE. WHAT OTHER FACTORS AFFECT HOW A KID LEARNS? Their environment. HOW DO YOU MEAN? Well, you might have a good attitude about learning, but you might have problems around you and your family, and so you don't really pay attention to your work. OTHER FACTORS? Well, you might just not understand what's being taught. AND WHY MIGHT THAT HAPPEN? It might not be explained right. I don't know. Sometimes, I mean, sometimes I have a hard time grasping what other people are saying. Just myself, it's not really their fault. WHAT ARE SOME OF THE FACTORS THAT COULD KEEP SOMEONE FROM BEING ABLE TO LEARN? Well, people might be distracting you. Well, their personal life might be affecting them. You might not be concentrating, you might just be thinking about your problem. (Laura, 12-11)

When asked WHAT COULD SOMEONE TO TO BE A BETTER LEARNER, Theresa replied:

> Do your homework everyday, study hard, study for your tests, get your answers down, do extra work, try to make friends. WHY WOULD THAT MAKE A DIFFERENCE? Cause, maybe, cause you're lonely or no one likes you and you just want to fail cause there's nothing to do. No one wants to play with you, no one likes you, so what the heck. (Theresa, 13-0)

The above responses illustrate that at this level, children have a sense that cognitive ability and psychological interpersonal factors affect learning, and, moreover, how they affect learning. They

understand that psychological factors can interfere with external-situational requirements of learning, such as paying attention and listening. In addition, learning is seen as a dynamic process in which the learner, and his or her psychological self, is actively involved.

Children at this level included four major factors as important to or as influencing the learning process: 1) external-situational factors, such as following classroom rules, although this dimension is not emphasized; 2) interactions between the learner, the teacher, and the activity to be learned (being taught); 3) psychological factors regarding the learner's cognitive abilities, such as grasping, understanding, remembering, thinking; and 4) non-cognitive psychological factors, such as attitude, interest, and effort. The use of these factors is further illustrated in the following responses regarding better learners, good learners, and poor learners.

In response to the question, WHAT CAN ONE DO TO BE A BETTER LEARNER?, students at this level replied:

> Start doing all their work and stop fooling around. They could still play sports and everything. And get their work in on time and everything. (Tony, 12-11)

> The kids that fool around, they might try to move away from them so they're not distracted by them. They might ask the teacher for extra studies at home. Maybe their parents can help them. (Laura, 12-11)

These responses give a picture of a learner who needs to follow external-situational requirements but in addition, can be in control.

In their descriptions of good and poor learners, the students at Level Three described the following: psychological aspects of the learners; how the learners react to external-situational factors, such as rules;

how the learners react to the teacher or the activity; and the learners' interactions with the peer group. Again, the learners described are active and in control. For example, in response to DESCRIBE A GOOD LEARNER:

> A person like that usually has a lot of friends, very popular in school, gets all her homework assignments and stuff like that done. They help the teacher a lot, they have good times, they really set good examples on the other children, and the other people know they're OK. And show the class what it is to be together, and stuff like that. (John, 13-0)

> Teacher's pet; not many friends, if you're teacher's pet, you don't usually have many friends. Spoiled by parents. Neat, clean. They'll revolt against their parents someday. HOW DOES THE PERSON ACT IN THE CLASSROOM? Goody-goody. (Judy (12-11)

> A POOR LEARNER was described by Tony as:

> It's a boy. WHY. Cause boys usually have trouble. He's good in sports and he joins all the sports and he's about medium height and he has red hair, he has freckles too. And everybody likes him; he's funny, he tells jokes and everything. He's always talking, so he gets caught by the teacher all the time and they always say his name and getting in trouble and all that. And, sometimes he does his work when he likes to do it and sometimes he doesn't. And, he always wants to play sports. He can't wait for the recess bell to ring so he can go outside and play. DOES HE LIKE SCHOOL? Um, in some places he does. Like in the places he's good in, he does. Like, maybe he's sort of smart in math, he's right on level or a little below, so he likes that. So, he's not having trouble with it. HOW COME HE DOESN'T DO GOOD IN SCHOOL? Cause he doesn't really like school. He likes to play sports and everything. (Tony, 12-11)

Level by Age Results

A quantitative analysis, such as correlating the children's level scores with age, was not formally carried out because the responses of all the children in this study were used in the qualitative analysis to construct the levels. It would be necessary to gather data on a second group of children, score their responses using a scoring system based

on the qualitative analysis developed in this study, and test the relationship between level score(s) and age. However, to gain some information on the relationship between level score and age, the frequency of children at each age group in this study who would be considered to fit each level is reported.

If the children were given an over-all level score for their reasoning across the entire interview, the investigator estimates that all the 6 to 7-year-olds would be classified as Level One; all the 9 to 10-year-olds would be classified as Level Two; and all the 12 to 13-year-olds would be classified as Level Three. This is not to say that there was no variation between children at each level. Of the children who would be globally classified as Level One, one child answered many of the questions with an "I don't know" response, but his scorable responses were Level One-type reasoning. Two of the Level One children showed indications of advanced reasoning on some of the questions by referring to interactional factors, but their primary mode of reasoning was Level One.

Of the children that would be classified as Level Two, all but one child appeared to be very consistent in her reasoning. The one child who showed variation used more advanced psychological understanding on parts of the interview than the other children classified as Level Two. The children classified as Level Three were all consistent in their reasoning and were definitely Level Three thinkers.

This estimate suggests a strong age by level relationship. The relationship between the child's age and level of reasoning according to the levels can be interpreted as suggestive evidence for the existence of distinct, progressive, developmental levels of children's understanding

of the concept of learning and their use of psychological factors in explaining learning behavior.

Discussion

Keeping in mind the exploratory nature of this study and, consequently, its limitations, the findings are discussed. The results of the qualitative analysis suggest that children's concept of the learning process appears to show consistent and progressive change across the age groups studied. The 6 to 7-year olds view learning as "doing," the 9 to 10-year old children conceive of learning as "knowing" or "coming to know," and the 12 to 13-year-olds conceptualize learning as an interactive, cognitive "process." This shift in the focus of reasoning described is similar to the external-internal progression found in other studies on the development of psychological concepts, which were discussed earlier.

The findings on children's use of psychological factors to explain learning also suggest a consistent progression across the three levels. The youngest group of children reasoned that only external-situational factors affect learning, whereas the middle group added the effects of interactions between the learner and the activity and the learner and motivational factors. Although the 9 to 10-year-olds began to consider psychological factors, it was the oldest group of children, the 12 to 13-year-olds, whose reasoning was primarily concerned with psychological factors and their effects on the learning process. This progression is similar to the results found by Josephson (1976) and Pratt (1975) in their studies of children's explanations of behavior.

There also appears to be a strong relationship between children's understanding of the concept of learning, a psychological concept, and

their understanding of psychological causes or influences on learning. That is, the 6 to 7-year-olds view learning as nonpsychological and, consequently, do not consider psychological influences on learning. The 9 to 10-year-olds conceptualized learning as knowing, an inferred psychological notion, and consider the cognitive and personality characteristics of the learning as influencing learning. Similarly, the 12 to 13-year-olds view learning as an interactive cognitive process and place heavy emphasis on the effects of the learner's cognitive/psychological self on the process of learning.

Thus these findings, although tentative and obtained from a small sample of children, strongly suggest that learning is conceptualized very differently at ages 6, 9 and 12. To the developmental and educational psychologist, it is not surprising that as children develop cognitively, socially and emotionally, their view of learning in a school context also develops. Teachers and other educators working with children can profit from this awareness and should attempt to gear teaching strategies and motivational techniques to the developmental level of their classes and of individual students.

It also seems to follow that children at different ages who have difficulties in one or more aspects of learning, often referred to by the special education category "learning disabled," will have different levels of understanding of why they have learning problems. To professionals and parents who have worked with learning handicapped children to help them understand why they have learning problems when most of their peers do not and why they feel "all dumb" though they are assured that they are

not, it is obvious that developmentally based information to aid in helping these children is badly needed. The six-year-old boy who understands learning in the classroom as doing the assigned tasks and following classroom rules and procedures may be incapable of understanding failure due to, for example, cognitive and/or psychological characteristics of himself. Although the nine-year-old may be capable of understanding the effects of individual differences on learning, it may not be until 12 or so that this knowledge is clearly evident. Strategies to help children understand themselves in relation to learning need to be developed and put into practice.

It also could be the case, as alluded to by Harter (1977), that an older child who has the capacity to understand that she is good at some learning tasks but performs poorly at others due to cognitive, psychological and/or interactional factors, may yet view herself as "all dumb" because of a strong emotional reaction to her learning difficulties. This example is a reminder that understanding a child's social cognitive capabilities is only one aspect in comprehending a child's behavior, emotional reactions and needs. However, knowing if a child has underdeveloped or precocious social cognitive understanding and in what domains or contexts is important for planning and implementing successful therapeutic interventions (see Selman, 1980).

This piece of exploratory research is a first step toward documenting the normal course of the development of the child's conceptualization of the learning process. Further research is necessary to establish more

firmly the developmental and organizational nature of the levels identified in this study, to test the replicability of the findings, and to explore the applicability of the findings to educating and counseling children with special learning needs.

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Table 1.

Levels of Concepts of Learning

Level 1: Engaging in School-Related Activities. Ages 6 to 7. Learning is characterized as doing activities and results from doing the activities and adhering to external-situational requirements, such as classroom rules and procedures. Learning is described as observable behavior; directly experienced. The learner is perceived as static, noninteracting. The learner reacts to external-situational requirements, which are seen as being in control of learning. Children at this level characterize only two factors as influencing learning: doing the activities and following the rules and procedures of the classroom.

Level 2: Possessing Knowledge. Ages 9 to 10. Learning is characterized as the acquisition of knowledge (knowing) and results from an interaction between the learner and the activity to be learned, and from an interaction between the learner and the others. Cognitive and psychological characteristics of the learner are described, but their direct influence on learning is not clearly understood. Learning as knowing is an inferred, internal quality, though not yet conceived as a process. The learner is viewed as an active participant in coming to know, and has some control over his or her learning, though relies on others to a great extent. The children at this level characterize four factors as influencing learning: interaction between the learner and the activities and the learner and others; the learner's cognition or ability to know; psychological factors of personality and motivational characteristics; and external-situational factors.

Level 3. An Interactive Process of Acquiring Knowledge. Ages 12 to 13. Learning is characterized as an inferred, cognitive process and results

Table 1. (cont.)

from the interaction between the learner's cognitive/psychological self, the activity of the learner, and the person teaching. As a result of the learning process, one acquires knowledge, understanding, and transferable skills and tools. In a shift from Level 2, the process of learning is seen as being primarily affected by the cognitive abilities and psychological characteristics of the learner. In addition, learning is conceptualized as a dynamic process where the learner is actively involved and in control of his or her learning. The four factors viewed as influencing/causing learning are: the interaction between the learner, the teacher, and the activity; the learner's cognitive abilities; the learner's psychological characteristics; and, though seldom mentioned, external-situational factors.

Table 2.

Levels of Conceptualization of Learning by Dimensions

Dimensions	Level One (Ages 6-7) Doing Activities	Level Two (Ages 9-10) Possessing Knowledge; Coming to Know	Level Three (Ages 12-13) Cognitive Process of Acquiring Knowledge
Passive vs. Active Learner	The learner is passive or reacts to external factors. Learning is done to the learner	The learner is an active participant but dependent on others	The learner is an active participant; more independent
External vs. Internal Control	The learned is controlled by external factors	The learner is controlled by external and internal factors	The learner is controlled by internal factors
Observed vs. Inferred Perception of Learning	Only observed behavior is described	Inferences made about the existence of psychological factors	Inferences made about the existence and effects of psychological factors

Table 3.

Levels of Conceptualization of Learning by Factors Affecting Learning

Factors Affecting Learning	Level One (Ages 6-7)	Level Two (Ages 9-10)	Level Three (Ages 12-13)
External-Situational Factors	A major influencing factor. The learner must follow classroom rules to learn	A minor influencing factor. The learner considers the classroom rules	Not mentioned as an important factor to learning
Interactional Factors	Static relationship between the learner and the activities	Interaction between the knowing abilities of the learner and the activities The interaction with others considered to be important; a beginning sense of teaching	Interaction between cognitive ability and psychological characteristics of the learner and the activities The interaction with others is considered to be the process of being taught

Table 3. (cont.)

Factors Affecting Learning	Level One (Ages 6-7)	Level Two (Ages 9-10)	Level Three (Ages 12-13)
Psychological Concepts: Cognitive factors	(not mentioned)	A sense of the influence of individual ability to know on learning	A sense of the influence of individual's cognitive abilities on learning
Psychological Concepts: Motivation, Personality, etc.,	Global descriptions, such as nice, kind	A sense of the existence of psychological factors as part of the learner	A sense of the influence of psychological factors on the learner